

# Plan for the day

1. Reminder: final Ants due **Sunday night**. Your ants must at minimum:
  - a) Collect food
  - b) Explore the board
  - c) Attempt to capture hills
  - d) Do something to “band together” and attack other ants
2. Pictures!
3. Course Evaluations
4. Ants fights

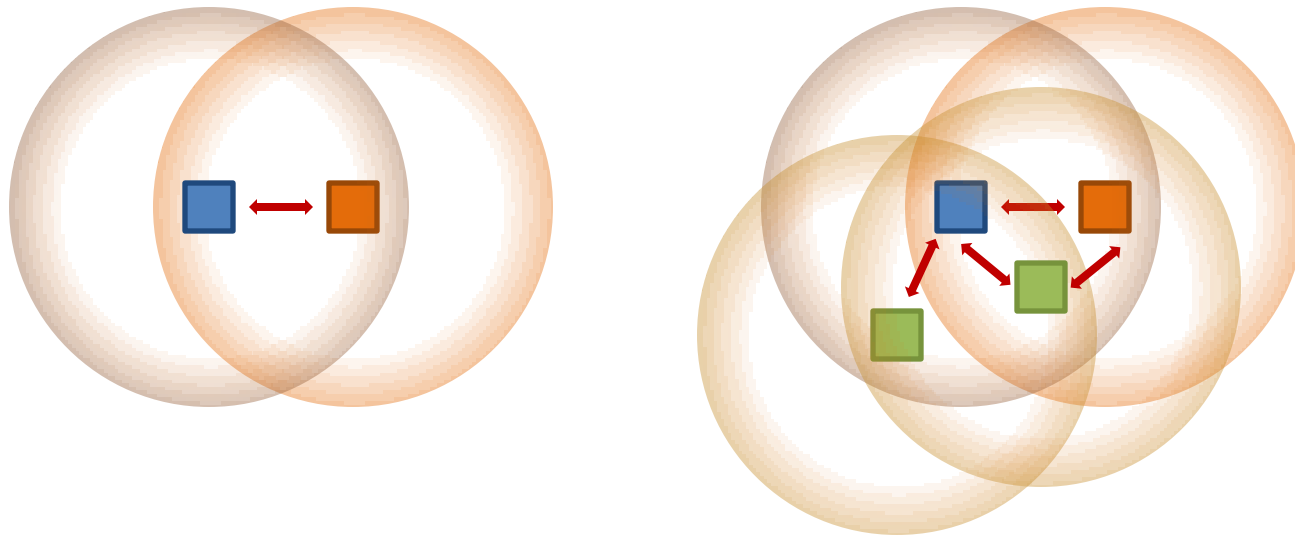
# Course Evaluations

1. This is serious business – I look over every evaluation and reflect on it. Evaluations are also used in hiring/tenure decisions, so please do treat it very seriously and give me the most accurate feedback you can.
2. If you are not officially registered for this course, don't submit an evaluation form (I think that would confuse them). But I've made a form you can submit your evaluation online – go to the syllabus page to see it.

# Ants Fighting

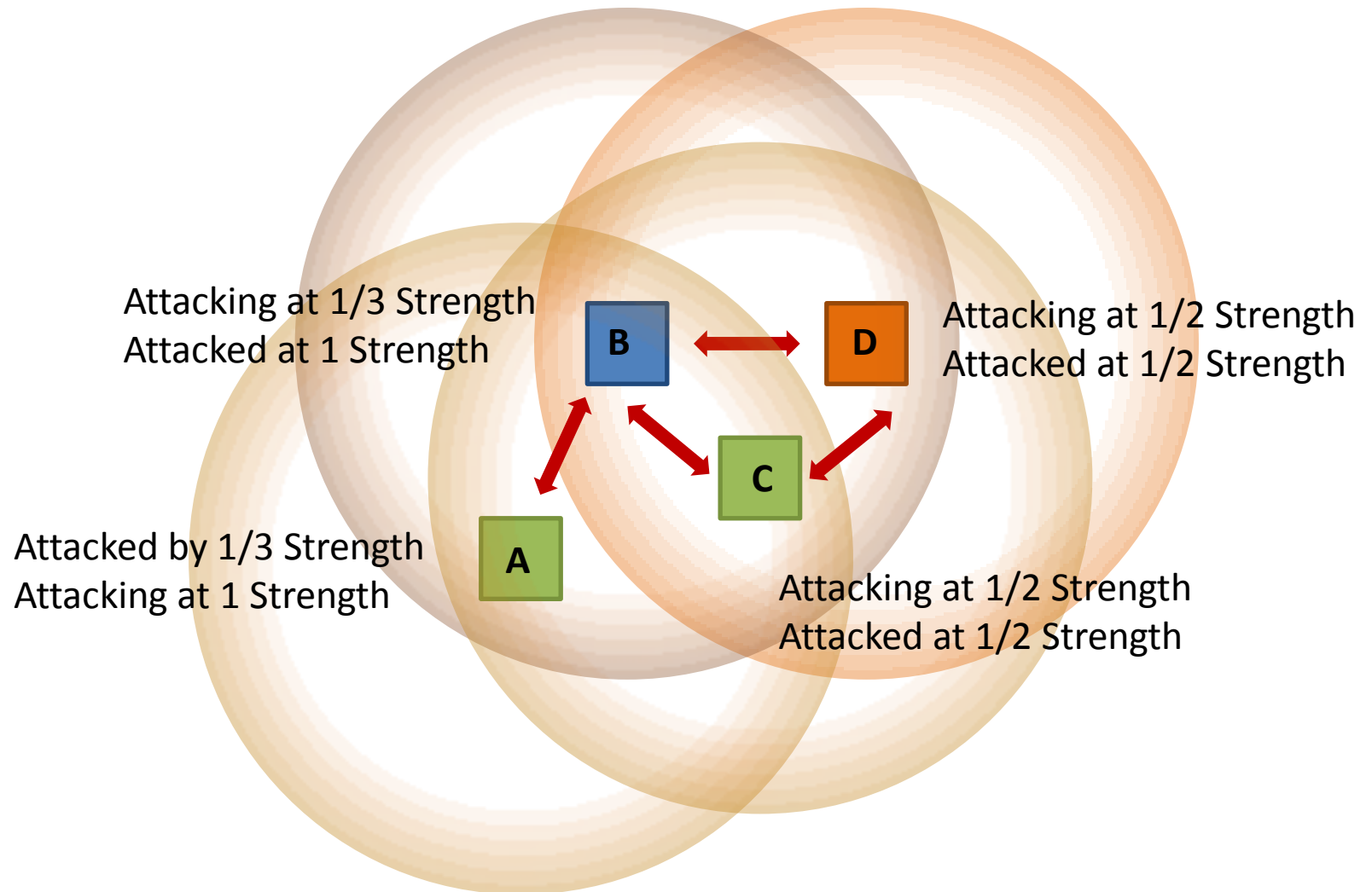


# Rules of Ant Fighting

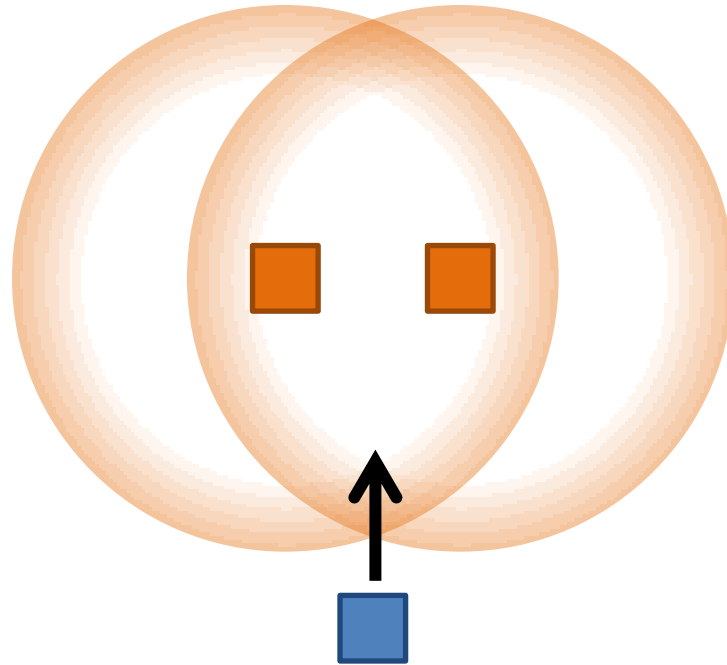


Ants automatically fight every enemy within their combat radius.

# You survive if you are less “distracted” than your opponents



# Simple Rule: Don't Walk into Certain Death



# More Sophisticated Strategies

1. Figure out the ants that might influence a fight
2. Quickly predict some scenarios (you probably don't want to enumerate every possible one though)

# Ants that might be involved

## From the forums:

1. Take some your ants, put it into pre-battle-group.
2. Add all enemies in  $\text{attackradius}+2$  from some your ant which is already in pre-battle-group.
3. Add all your ants in  $\text{attackradius}+2$  from some enemy ant which is already in pre-battle-group.
4. Repeat 2 and 3 until pre-battle-group stop growing.

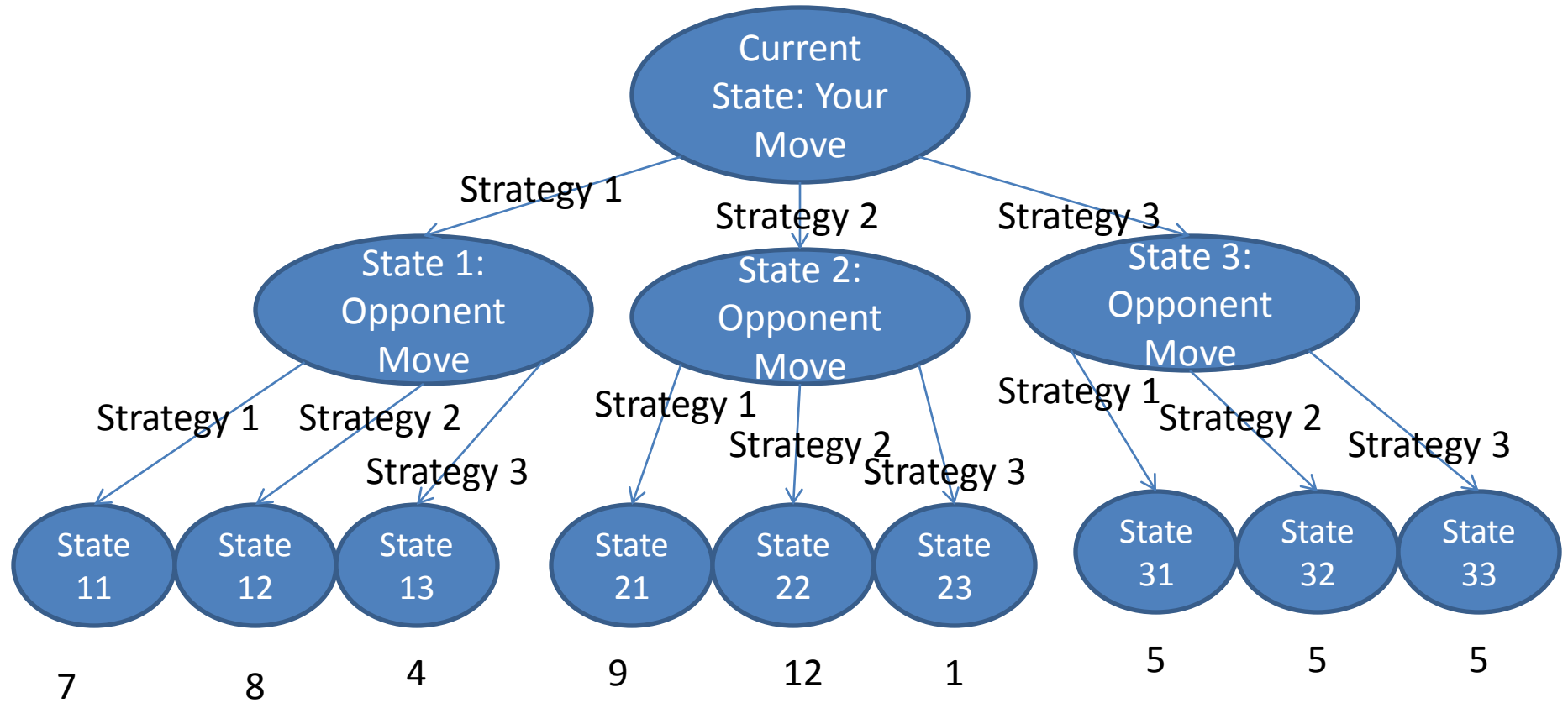
To figure out which ants are nearby a structure called a quadtree can be useful (or a kd-tree, but that one seems a little trickier to implement)



# Quickly Predict Some Scenarios

- You've got a measure of "goodness" – maybe how many ants survive or if you are closer to capturing the hill
- You've got several "strategies". Like maybe "charge the enemy" or "flee".
- Simplistic: Simulate each of the strategies, pick the "best state".
- But what if you set yourself up for failure next turn?

# Min/Max



Next time: Final Throwdown